Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1.-10. (Cancel)

Claim 11. (Currently Amended) A return-to-zero (RZ) recovery system comprising: ~~The system of claim 8~~

filter configured to receive a data signal and to reduce high frequency components from the data signal to form a filtered data signal;

recovery unit configured to receive the filtered data signal, identify a first type of data transition, and provide phase information when the first type of data transition is identified;

wherein the recovery unit comprises phase detector determining phase difference between a recovered clock signal and the data signal; and

wherein the recovery unit further comprises an inhibitor receiving a phase difference signal and the data signal, the inhibitor determining if the first type of data transition has occurred.

Claim 12. (Original) The system of claim 11 wherein the recovery unit further comprises loop filter receiving the phase

difference signal from the inhibitor if the first type of data transition has occurred.

Claim 13. (Original) The system of claim 12 wherein the recovery unit further comprises a oscillator and wherein the loop filter filters the phase difference signal and provides the filtered phase difference signal to the oscillator.

Claim 14. (Original) The system of claim 13 wherein the filtered phase difference signal acts as a control voltage to the oscillator.

Claim 15. (Original) The system of claim 13 wherein the oscillator generates the recovered clock signal based on the filtered phase difference signal.

Claim 16. (Original) The system of claim 13 wherein the oscillator adjusts the frequency of the recovered clock signal based on the filtered phase difference signal.

Claim 17. (Cancel)

Claim 18. (Currently Amended) A return-to-zero (RZ) recovery system comprising:~~The system of claim 17~~

filter configured to receive a data signal and to reduce high frequency components from the data signal to form a filtered data signal;

recovery unit configured to receive the filtered data signal, identify a first type of data transition, and provide phase information when the first type of data transition is identified;

wherein the recovery unit comprises phase detector determining a phase difference between a recovered clock signal and the data signal when the first type of data transition has occurred; and

wherein the phase detector determines if the first type of data transition has occurred.

Claim 19. (Cancel)

Claim 20. (Currently Amended) A return-to-zero (RZ) recovery system comprising: ~~The system of claim 19~~

filter configured to receive a data signal and to reduce high frequency components from the data signal to form a filtered data signal;

recovery unit configured to receive the filtered data signal, identify a first type of data transition, and provide phase information when the first type of data transition is identified;

wherein the recovery unit comprises inhibitor receiving the data signal and determines if the first type of data transition occurs; and

wherein the recovery unit comprises a phase detector and wherein the inhibitor provides the data signal to the phase detector when the first type of data transition occurs.

Claims 21.-24. (Cancel)

Claim 25. (Currently Amended) A method of sampling return-to-zero data, the method comprising: ~~The method of claim 24~~

receiving a data signal;

identifying a transition to a second data state from a first data state;

providing phase information when the transition is identified;

wherein the data signal is a return-to-zero data signal;

further comprising converting the return-to-zero data signal to a non-return-to-zero data signal;

further comprising removing high frequency components on the return-to-zero data signal, and

further comprising:

identifying a second transition to the first data state from the second data state; and

providing phase information when the second transition is identified.

Claim 26. (Original) The method of claim 25 further comprising generating a clock signal based on the provided phase information.

Claim 27. (Original) The method of claim 26 wherein the transition is a rising edge data transition.

Claim 28. (Original) The method of claim 26 wherein the second transition is a falling edge data transition.

Claims 29.-33. (Cancel)

Claim 34. (Currently Amended) A return-to-zero (RZ) recovery system comprising: ~~The system of claim 33~~

first recovery unit configured to receive a data signal and identifying a first type of data transition and determining a first phase information when the first type of data transition is identified;

second recovery unit configured to receive the data signal and identifying a second type of data transition and determining second phase information when the second type of data transition is identified; and

wherein the first recovery unit generates a first recovered clock signal based on the determined first phase information and the second recovery unit generates a second recovered clock signal based on the determined second phase information.

Claim 35. (Original) The system of claim 34 further comprising a interpolator generating a third recovered clock signal based on the first recovered clock signal and the second recovered clock signal.

Claim 36. (Original) The system of claim 35 wherein the third recovered clock signal is an additive result of the first and the second recovered clock signals.

Claim 37. (Original) The system of claim 35 wherein the third recovered clock signal is an interpolation of the first and second recovered clock signal.

Claim 38. (Original) The system of claim 35 wherein the data signal is a RZ data signal and the system further comprises a sampling unit and a filter, the filter converting the RZ data signal into a non-return-to-zero (NRZ) data signal and providing the NRZ data signal to the sampling unit.

Claim 39. (Original) The system of claim 38 wherein the sampling unit samples the data signal using the third recovered clock signal from the interpolator.

Claim 40. (Original) The system of claim 34 wherein the data signal is a RZ data signal and the system further comprises a sampling unit and a filter, the filter converting the RZ data signal into a non-return-to-zero (NRZ) data signal and providing the NRZ data signal to the first recovery unit.

Claim 41. (Original) The system of claim 40 wherein the second recovery unit is disabled.

Claims 42.-46. (Cancel)

Claim 47. (Currently Amended) A return-to-zero (RZ) recovery system comprising:~~The system of claim 33~~

first recovery unit configured to receive a data signal and identifying a first type of data transition and determining a first phase information when the first type of data transition is identified;

second recovery unit configured to receive the data signal and identifying a second type of data transition and determining second phase information when the second type of data transition is identified; and

wherein the data signal is a RZ data signal and the system further comprises a filter to convert the RZ data signal into a non-return-to-zero (NRZ) data signal and the filter provides the NRZ data signal to one of the first and second recovery units.

Claim 48. (Cancel)

Claim 49. (Currently Amended) A return-to-zero (RZ) recovery system comprising:~~The system of claim 48~~

first recovery unit configured to receive a data signal and identifying a first type of data transition and determining a first phase information when the first type of data transition is identified;

second recovery unit configured to receive the data signal and identifying a second type of data transition and determining second phase information when the second type of data transition is identified;

wherein the first recovery unit comprises a first phase detector determining phase difference between a first recovered clock signal and the data signal; and

wherein the phase detector generates a phase difference signal based on the determined phase difference.

Claim 50. (Original) The system of claim 49 wherein the phase difference signal is proportional to determined phase difference.

Claim 51. (Original) The system of claim 49 wherein the first recovery unit further comprises first loop filter receiving the phase difference signal from the first phase detector.

Claim 52. (Original) The system of claim 49 wherein the first recovery unit further comprises a oscillator and wherein the first loop filter filters the phase difference signal and provides the filtered phase difference signal to the oscillator.

Claim 53. (Original) The system of claim 52 wherein the oscillator generates the first recovered clock signal based on the filtered phase difference signal.

Claim 54. (Original) The system of claim 53 wherein the oscillator adjusts the frequency of the first recovered clock signal based on the filtered phase difference signal.

Claim 55. (Cancel)

Claim 56. (Currently Amended) The system of claim [[55]]49 wherein the second recovery unit comprises a second phase detector determining phase difference between a second recovered clock signal and the data signal; and

wherein the phase detector generates a phase difference signal based on the determined phase difference.

Claim 57. (Original) The system of claim 56 wherein the second recovery unit further comprises second loop filter receiving the phase difference signal from the second phase detector.

Claim 58. (Original) The system of claim 57 wherein the first recovery unit further comprises an oscillator and wherein the second loop filter filters the phase difference signal and provides the filtered phase difference signal to the oscillator.

Claim 59. (Original) The system of claim 58 wherein the oscillator generates the second recovered clock signal based on the filtered phase difference signal.

Claim 60. (Original) The system of claim 58 wherein the oscillator adjusts the frequency of the second recovered clock signal based on the filtered phase difference signal.

Claim 61. (Original) The system of claim 35 further comprises a sampling unit sampling the data signal using the third recovered clock signal from the interpolator.